

I CLAIM AS MY INVENTION:

1. A method for registering a usage value, representing use of a commodity, comprising the steps of:

non-volatilely storing at least one rate value for usage of a commodity, said rate value being valid within a predetermined time span;

obtaining respective measured values, using a mathematical algorithm, representing delivery of said commodity to a use location and output of said commodity from said use location;

obtaining time data relating to usage of said commodity at said use location and generating at least one usage value representing usage of said commodity at said use location, from said time data and said measured values;

generating a monetary charge for said usage of said commodity at said use location from said usage value and said rate value;

generating an electronic message that includes at least said charge;

forming a check code for protecting said electronic message;

generating a protected message that contains said electronic message and said check code; and

establishing electronic communication with a recipient at a location remote from said use location and electronically transmitting said protected message as a dataset to said recipient.

2. A method as claimed in claim 1 wherein the step of establishing said electronic communication with said recipient comprises making an initial attempt to establish said electronic communication with said recipient and, if said initial attempt is unsuccessful at establishing said electronic communication, repeatedly attempting to establish said electronic communication with said recipient until expiration of a predetermined limit.

3. A method as claimed in claim 1 wherein said dataset is a first dataset, and comprising the additional steps of:

at said recipient, upon receiving said first dataset, checking said first dataset for authenticity generating an enable code as a second dataset;

at said recipient, cryptographically protecting said enable code with an electronic signature of said recipient and transmitting said dataset with said electronic signature from said recipient to said use location as a return message; and

at said use location, checking said enable code for authenticity by verifying said electronic signature.

4. A method as claimed in claim 3 comprising the additional steps, at said use location, of:

if said enable code is authentic, resetting said charge to zero; and

if said enable code is not authentic, inhibiting further usage of said commodity at said use location.

5. A method as claimed in claim 1 wherein the step of generating said electronic message comprises including said usage value and said time data in said electronic message together with said charge.

6. A method as claimed in claim 1 comprising the additional step of generating said usage value at an end of a predetermined time segment for use of said commodity.

7. A method as claimed in claim 6 comprising forming said time segment periodically.

8. A method as claimed in claim 6 comprising forming said time segment dependent on an event related to usage of said commodity.

9. A method as claimed in claim 1 comprising the additional steps of:
identifying an event related to generation of said charge;
upon an occurrence of said event, calculating said charge to obtain an event-related charge; and
storing said event-related charge together with the usage value that was employed to generate said event-related charge.

10. A method as claimed in claim 9 wherein the step of identifying said event comprises identifying a change of said rate value as said event.

11. A method as claimed in claim 9 wherein the step of identifying said event comprises identifying a change in said usage value relative to a predetermined reference.

12. A method as claimed in claim 1 comprising analyzing said use data to identify usage behavior at said use location.

13. A method as claimed in claim 1 comprising generating an authentication code as said check code.

14. A method as claimed in claim 13 comprising selecting said authentication code from the group consisting of a hash code and an MAC, and forming said authentication code according to a symmetrical encryption algorithm.

15. A usage counter for a commodity comprising:
an input and an output for a commodity;
a measured value generator connected to said input and said output for generating a measured value of said commodity;
a security housing containing a security module connected to said measured value generator, and at least one security detector which detects an attempt to breach said security module;
a non-volatile memory in said security module in which at least one monetary rate value for usage of said commodity is stored, said rate value being valid for a predetermined time span;

said security module calculating a monetary charge for said usage of said commodity from said measured value and said rate value;
a communication device connected to said security module for electronically transmitting said charge to a recipient at a location remote from said communication device; and
said security module generating an electronic reaction, indicating an attempt to fraudulently manipulate said charge, dependent on at least one of a status of said security detector and said measured value.

16. A usage counter as claimed in claim 15 wherein said security module, for generating said electronic reaction, monitors said measured value to determine whether said measured value generator has been disconnected.

17. A usage counter as claimed in claim 16 wherein said measured value is an analog signal, and further comprising an analog-to-digital converter supplied with said analog signal for converting said analog signal into a digital signal, and wherein said security module monitors said measured value by generating a count dependent on said digital signal.

18. A usage counter as claimed in claim 17 wherein said analog-to-digital converter is a component of said measured value generator.

19. A usage counter as claimed in claim 17 wherein said analog-to-digital converter is a component of said security module.

20. A usage counter as claimed in claim 15 wherein said security module includes a real-time counter and wherein said security module causes said communication device to electronically communicate said measured value to said recipient at regular times identified by said real-time counter.

21. A usage counter as claimed in claim 15 wherein said security module includes a real-time counter and wherein said security module calculates said monetary charge at a time determined by said real-time counter.

22. A usage counter as claimed in claim 15 wherein said communication device is an ISDN module adapted for connection to said recipient via a telephone network.

23. A usage counter as claimed in claim 15 wherein said communication device is a power line module adapted for communication with said recipient via an energy supply network.

24. A usage counter as claimed in claim 15 wherein said communication device is a blue tooth module adapted to wirelessly communicate with a further blue tooth module at said recipient.

25. A usage counter as claimed in claim 15 wherein said communication device comprises a first blue tooth module and a second blue tooth module in wireless communication with said first blue tooth module, said second blue tooth module being adapted for communication with said recipient via a telephone network.

26. A usage counter as claimed in claim 15 wherein said communication device is integrated in said security module.

27. A usage counter as claimed in claim 15 wherein said input is an input for an electronically represented postage value and wherein said output is an output for said electronically represented postage value.